

REMARKS

Applicants have amended Claims 1, 3, 5 and 6 and cancelled Claim 4. Applicants have amended Claim 1 to include the subject matter of cancelled Claim 4. Applicants submit no new matter has been added by the present amendment and support for the amendment can be found in the application as filed.

1. Claim Objections – 37 CFR 1.75(c):

Claims 4-6 are objected to under 37 CFR 1.75(c) as being in improper form because multiple dependent claims cannot depend from any other multiple dependent claims. Claims 3, 5 and 6 have been amended to be in proper claim form and accordingly Applicants request withdrawal of this ground of rejection.

Claim 6 is objected to because of the following informalities: the second line states "carried out at temperatures in the range of from 0.1 to 100 bar." Applicants have amended Claim 6 and replaced the word "temperatures" to "pressures" and accordingly request withdrawal of this ground of rejection.

2. Claim Rejections – 35 USC § 102(b)

Claims 1 and 5 are rejected under 35 USC 102(b) as being anticipated by Takahashi et al. WO/200320293207. Applicants respectfully traverse this ground of rejection and submit Claims 1 and 5 are novel over Takahashi et al.

Applicants further submit in order to anticipate a claim the cited reference must teach each and every element of the claimed invention, either explicitly or inherently. Applicants submit Takahashi et al. fails to teach each and every element of the claimed invention.

According to the present invention, a metal-containing colloid is used as catalyst for the hydrogenation of unsaturated polymers. A colloid is a type of mechanical mixture where one substance is dispersed evenly throughout another. In this case the metal, the unsaturated polymer in latex form and water are dispersed. In order to get a colloid and to avoid coagulation of the latex, according to the present invention, it is important to work in a pH range from 3 to 6. As shown in the Table in the application on page 10

a metal colloid prepared at pH of 14 (See Comparison Example 1.2) will not hydrogenate the polymer (see the degree of hydrogenation is 0 % in the Table on page 10). A metal colloid prepared at pH 5 (See Example 11 of the present invention) produces a hydrogenation of 12 to 13 % (See the Table of page 10).

Takahashi et al. teaches that a pH > 7 is used for the hydrogenation (paragraph 55 and 56 in US2004/0242800). Takahashi et al. further teaches that the process is difficult to achieve under neutral or acid conditions (paragraph 56). This shows that according to the process of Takahashi the metal catalyst is not used in its colloid form. Further, Takahashi et al. does not disclose or suggest that the metal catalyst is in a colloid form. In the alternative, the process of Takahashi et al. utilizes supported or non-supported catalysts (paragraph 43 and 45) as a solution or dispersion (paragraph 51). Applicants submit a dispersion is not a colloid (because of the particle size; see the common definition of a colloid). Therefore, Applicants submit, for at least these reasons, Takahashi et al. does not teach or suggest the claimed invention.

3. Claims Rejection - 35 USC 103(a)

a. **Claim 2 is rejected under 35 USC 103(a) as being unpatentable over Takahashi et al. as applied to claim 1 above, and further in view of Craun et al., U.S. Patent 5,470,906.** Applicants submit their arguments above and further submit that Takahashi et al. in view of Craun et al. fails to render the present invention obvious. As discussed in detail above, Takahashi et al. fails to teach or suggest the present invention, namely the utilization of a metal containing colloid wherein the colloid is prepared at a pH in the range of from 3 to 6. Applicants submit even if one skilled in the art was motivated to combine Takahashi et al. with Craun et al. all the elements of the claimed invention would not be taught. Craun et al. is directed to dry emulsion paints based on emulsion polymeric binders. Craun et al. does not teach or suggest the use of metal containing colloids prepared at a pH in the range of from 3 to 6. Accordingly, Applicants submit combination with Craun et al. fails to make up the deficiencies in the teachings of Takahashi et al. and therefore fail to render the present invention obvious. Accordingly, Applicants request withdrawal of this ground of rejection.

b. Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Takahashi et al. as applied to claim 1 above, and further in view of Craig et al. U.S. Patent 4,801,643. Applicants respectfully traverse this ground of rejection and submit that Claim 4 is patentable over Takahashi et al. in view of Craig et al. Applicants incorporate their comments above.

As discussed in detail above, Takahashi et al. does not teach or suggest the use of metal containing colloids. Craig et al. discloses the use of colloids based on cellulose derivates, starch derivates and alginates (column 4, line 11 - 28). According to Craig et al. the non-surface active colloids are utilized in the polymerization of acrylic esters, methacrylic esters and mixtures thereof to prepare aqueous polyacrylate dispersions useful in paints, binders for nonwoven materials, water based inks etc. Craig et al. does not teach or suggest that a metal containing colloid is possible to be prepared, nor does Craig et al. in combination with Takahashi et al. predict that a metal containing colloid, prepared at a pH of between 3 and 6 would be useful in the hydrogenation of an unsaturated polymers containing double bonds in accordance with the present invention. Craig et al. does not even hint at the success illustrated in the present invention to prepare a colloid at the claimed pH level. Accordingly, Applicants submit the combined references fail to render the present invention obvious and therefore respectfully request withdrawal of this ground of rejection.

c. Claim 6 is rejected under 35 USC 103(a) as being unpatentable over Takahashi et al. as applied to claim 1 above, and further in view of Abraham et al., U.S. Patent 4,994,528. Applicants respectfully traverse this ground of rejection and submit that Claim 6 is patentable over Takahashi et al. in view of Abraham et al. Applicants incorporate their comments above.

As discussed in detail above, Takahashi et al. does not teach or suggest the use of metal containing colloids prepared at a pH in the range of 3 to 6 in the hydrogenation of unsaturated polymers containing double bonds. Applicants submit the deficiencies in the teachings of Takahashi et al. are not made up by combination with Abraham et al. And accordingly Applicants submit the combination of Takahashi et al. with Abraham et al. does not teach or suggest the present invention, such that to render the invention obvious. Applicants submit that Abraham et al. is directed to a process for preparing

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elastomers from hydrogenated butadiene-acrylatic-copolymers. For the hydrogenation a transition metal catalyst and a trialkylaluminium catalyst (column 11, line 64 - 68) are used. Specifically, Abraham et al. teaches that palladium, platinum or rhodium must be used as tetra- or trikistriphenyl-phosphine derivate (column 12, line 8 - 12). Metal containing colloids prepared at a process pH from 3 to 6 are not disclosed in Takahashi et al. nor in Abraham et al. Therefore, Applicants submit that the present invention is not obvious in view of Takahashi et al. in combination with Abraham et al.

The USPTO is hereby authorized to charge any fees for an extension of time or those under 37 C.F.R. 1.16 or 1.17, which may be required by this paper, and/or to credit any overpayments to Deposit Account No. 50-2527.

Respectfully submitted,

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